

Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims

1 to 18. (canceled).

19. (original) A system to decrease emission of mercury; comprising:

a combustion zone that is controlled to generate a flue gas comprising fly ash with enhanced unburned carbon and that produces vaporized mercury; and

a post combustion zone to cool the flue gas to collect fly ash with enhanced unburned carbon with absorbed mercury.

20. (original) A system to decrease emissions of nitrogen oxide and mercury while decreasing carbon in fly ash, comprising:

a combustion zone that is controlled by fuel type, fuel staging, air staging or a combustion condition to generate a flue gas comprising fly ash with enhanced unburned carbon and that produces vaporized mercury;

a post combustion zone to cool the flue gas to collect fly ash with enhanced unburned carbon with absorbed mercury;

an ash treatment unit that removes carbon from the fly ash and produces a mercury-containing exhaust gas; and

a collection unit that captures the mercury.

21. (original) The system of claim 20, additionally comprising a particulate collector to collect fly ash with enhanced unburned carbon with absorbed mercury.

22. (original) The system of claim 21 wherein the particulate control device is selected from

a dry electrostatic precipitator, wet electrostatic precipitator, baghouse and fabric filter.

23. (original) The system of claim 20, wherein the ash treatment unit is a reactor in which carbon is burned out from ash in the presence of air to generate carbon dioxide or is an electrostatic separator.

24. (original) The system of claim 20, wherein the collection unit is selected from the group consisting of an activated carbon collection system, mercury adsorption system, mercury oxidation system, reactor for forming amalgam, reactor for wet capture of mercury, scrubber, catalytic oxidation system, zeolite-based mercury system and combinations of thereof.

25. (currently amended) The system of claim 20, wherein the ash treatment unit is a burnout unit, ~~and if a burnout heat is recovered from the unit by preheating water used for boiler heat exchange.~~

26. (new) The system of claim 20, further including a boiler located in heat exchange proximity to the combustion zone to be heated by heat generated in the combustion zone.

27. (new) The system of claim 20, further comprising a particulate control device that collects fly ash with enhanced unburned carbon and absorbed mercury from the post combustion zone for feed to the ash treatment unit.

28. (new) The system of claim 20, further comprising (i) a boiler located in heat exchange proximity to the combustion zone to be heated by heat generated in the combustion zone and (ii) a particulate control device that collects fly ash with ~~enhanced unburned carbon and~~ absorbed mercury from the post combustion zone for feed to the ash treatment unit comprising a burnout unit that preheats water used for the boiler.